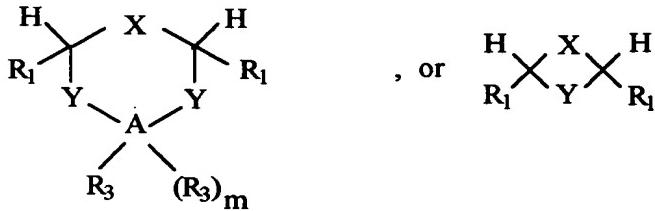
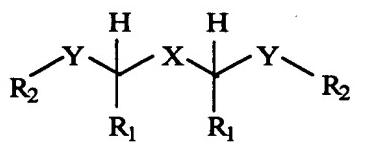
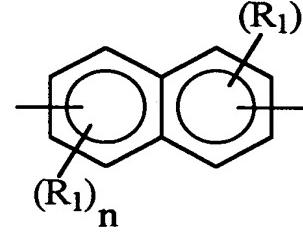
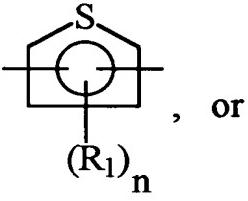
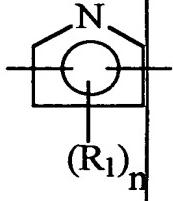
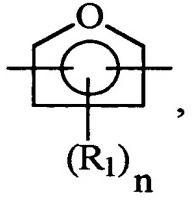
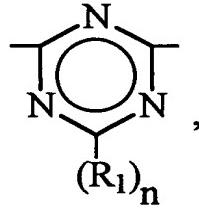
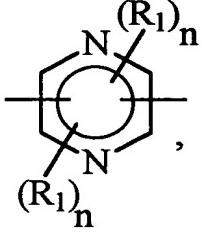
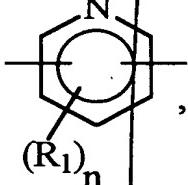
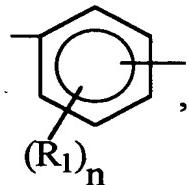


I CLAIM:

1 A polymer which comprises polyvinyl chloride, polyvinylidene chloride,
2 polycarbonate, polyurethane, polyethylene, polypropylene, polyamide, polyimide,
3 polyester, or polyvinyl acetate containing about 0.005 to about 10 phr of a stabilizer
4 having the formula:



5 where A is C, P, Sn, Si, or B, X is $-\text{R}_1\text{C=CR}_1-$, $-\text{C}\equiv\text{C}-$,

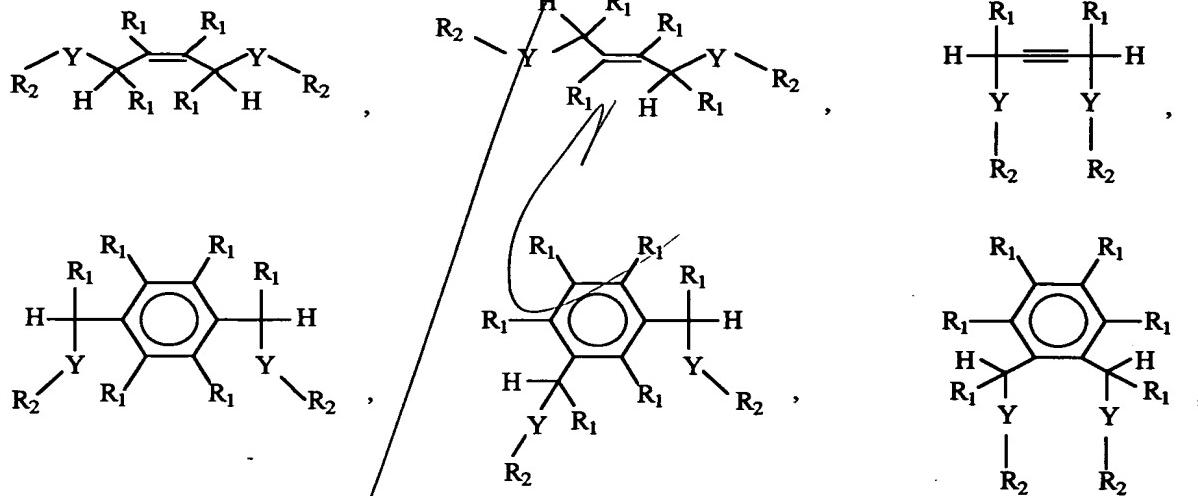


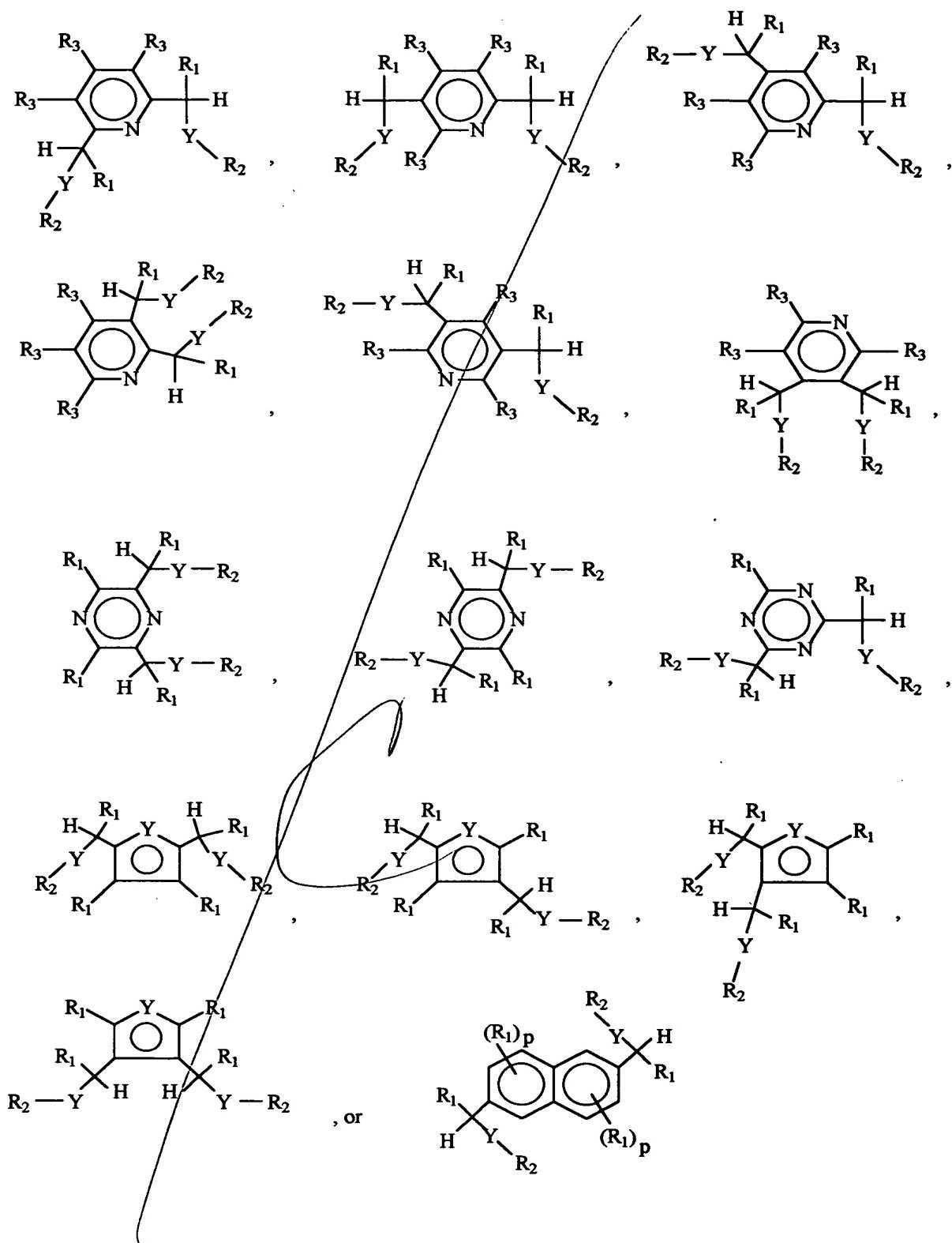
6 each Y is independently selected from O and S; each R is independently selected
7 from hydrogen, alkyl from C_1 to C_{20} , aryl from C_6 to C_{20} , alkaryl from C_7 to C_{20} , and
8 aralkyl from C_7 to C_{20} ; each R_1 is independently selected from R, OR, RCO, ROCO,
9 ROCO_2 , $\text{P}(\text{R})_2$, $\text{P}(\text{OR})_2$, $\text{PR}(\text{OR})$, $\text{N}(\text{R})_2$, $(\text{R})_2\text{NCO}$, $(\text{R})_2\text{NCO}_2$, SR, and halogen; each

10 R_2 is independently selected from R, RCO, ROCO, P(OR)₂, Sn(R)_p(OR)_{3-p},
11 Sn(R)_p(OCOR)_{3-p}, Si(R)_p(OR)_{3-p}, and B(R)_p(OR)_{2-p}, and two R₁ groups, two R₂ groups,
12 or an R₁ group and an R₂ group can be bridged together to form a ring, except that
13 when two Y's are O and X is -R₁C=CR₁- at least one R₂ is not hydrogen; each R₃ is
14 independently selected from R, RCO, ROCO, ROCO₂, OR, SR, N(R)₂, OP(R)₂, and
15 OP(OR)₂; m is 0 when A is P or B and is 1 when A is Sn, Si, or C; n is 0 to 4,
16 depending on the number of available sites; and p is 0 to 3 for the tin stabilizers and
17 0 to 2 for the boron stabilizers.

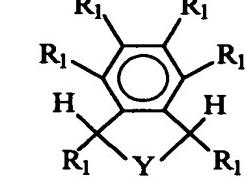
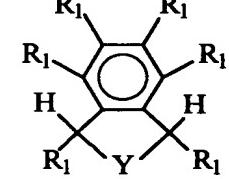
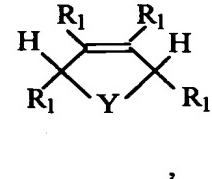
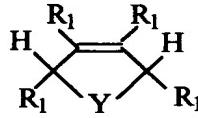
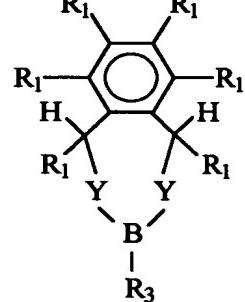
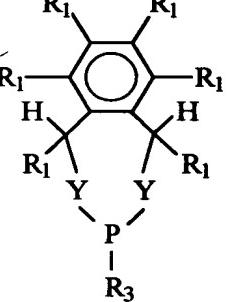
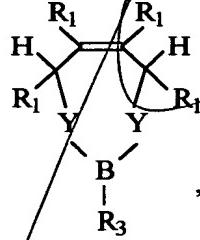
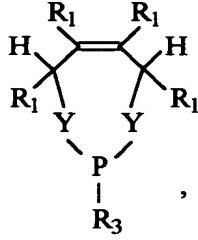
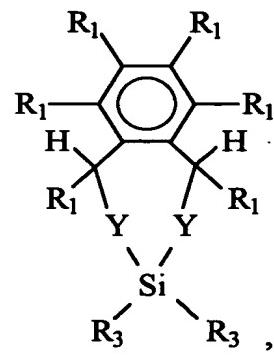
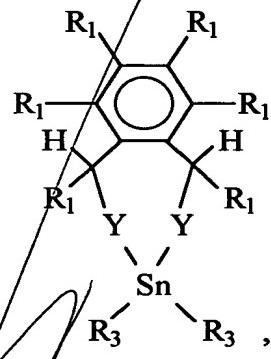
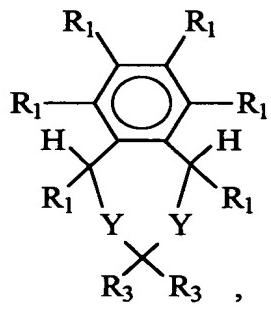
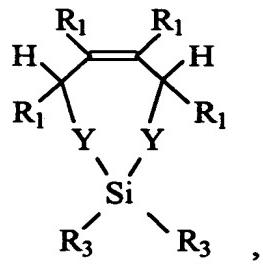
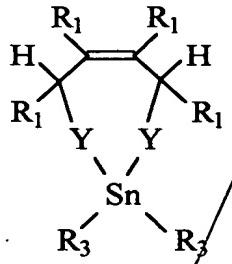
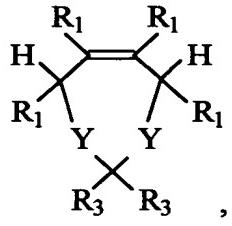
2. A polymer according to Claim 1 wherein said polymer is polyvinyl chloride.

3. A polymer according to Claim 1 wherein said stabilizer has the formula





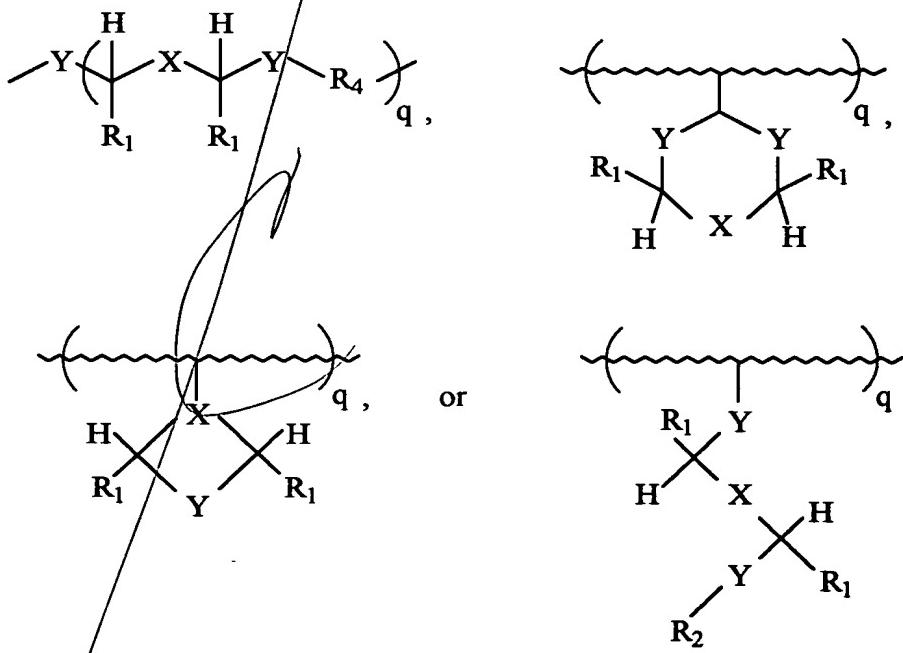
4. A polymer according to Claim 1 wherein said stabilizer has the formula:



5. A polymer according to Claim 1 that is has been made into an article that has been sterilized with gamma radiation.
6. A polymer according to Claim 1 wherein said stabilizer is cis-4-benzyloxy-2-buten-1-ol.
7. A polymer according to Claim 1 wherein said stabilizer is cis-1,4-dibenzyloxy-2-butene.
8. A polymer according to Claim 1 wherein said stabilizer is a 4,7-dihydro-1,3-dioxepin.
9. A polymer according to Claim 1 wherein said stabilizer is a phthalan.
10. A polymer according to Claim 1 wherein Y is O.
11. A polymer according to Claim 1 wherein X is -R₁C=CR₁.
12. A polymer according to Claim 1 wherein A is C.
13. A polymer according to Claim 12 wherein X is -HC=CH-; R is benzyl; R₁ is H; R₂ is R; R₃ is R; said two R₁ groups that can be bridged together to form a ring

3 are selected from the group consisting of alkylene from C₁ to C₈,
4 (aryl)alkylene from C₇ to C₈, and -CO-(aryl)alkylene-CO- from C₇ to C₈; or p
5 is 0.

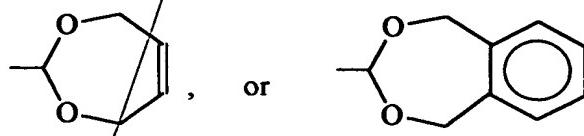
14. A polymer according to Claim 1 where each R is independently selected from hydrogen, alkyl from C₁ to C₁₂, aryl from C₆ to C₁₂, alkaryl from C₇ to C₁₂, and aralkyl from C₇ to C₁₂.
15. A polymer according to Claim 1 wherein said stabilizer has the structure:



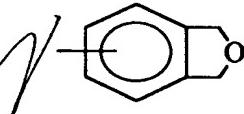
2 where R₄ is alkylene from C₁ to C₂₀, arylene from C₆ to C₂₀, (aryl)alkylene from
3 C₇ to C₂₀, (alkyl)arylene from C₇ to C₂₀, alkanediyl from C₁ to C₂₀,
4 (aryl)alkanediyl from C₇ to C₂₀, -CO-(alkylene)-CO- from C₁ to C₂₀, -CO-

5 arylene-CO- from C₆ to C₂₀, -CO-(aryl)alkylene-CO- from C₇ to C₂₀, -CO-
6 (alkyl)arylene-CO- from C₇ to C₂₀, Si(R)₂, SiR(OR), Si(OR)₂, P(OR), B(OR),
7 Sn(R)₂, SnR(OR), or SnR(O-CO-R); and q is 1 to 1000.

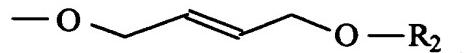
16. A polymer according to Claim 15 wherein said stabilizer has the pendant groups



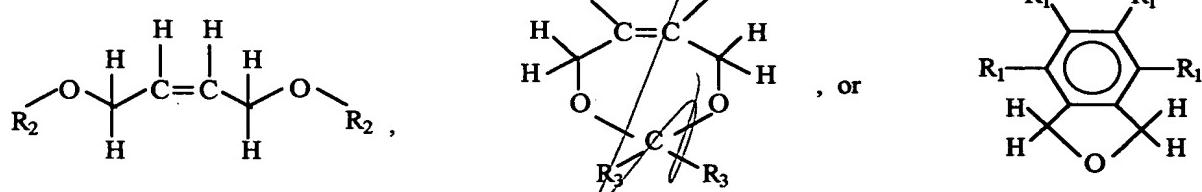
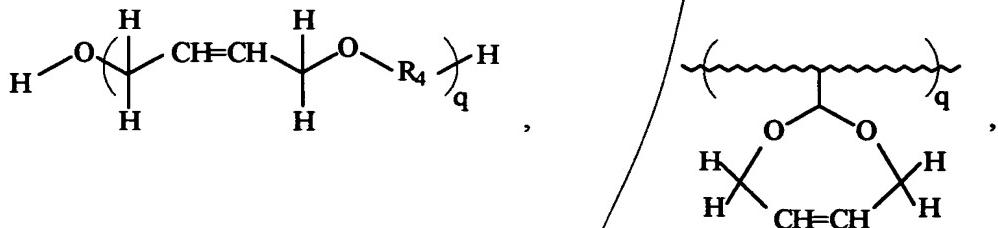
17. A polymer according to Claim 15 wherein said stabilizer has the pendant group



18. A polymer according to Claim 15 wherein said stabilizer has the pendant group



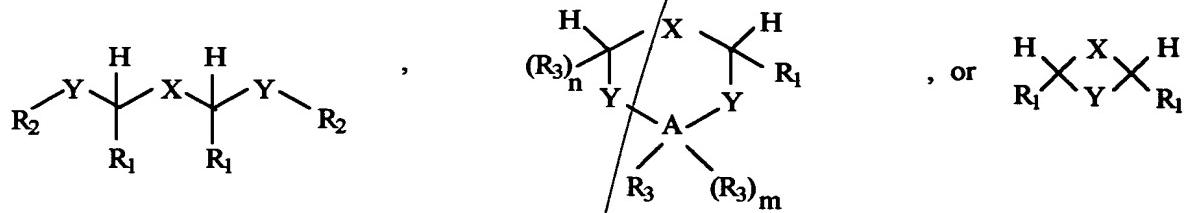
19. A polymer according to Claim 15 that has been made into an article and sterilized with gamma radiation.



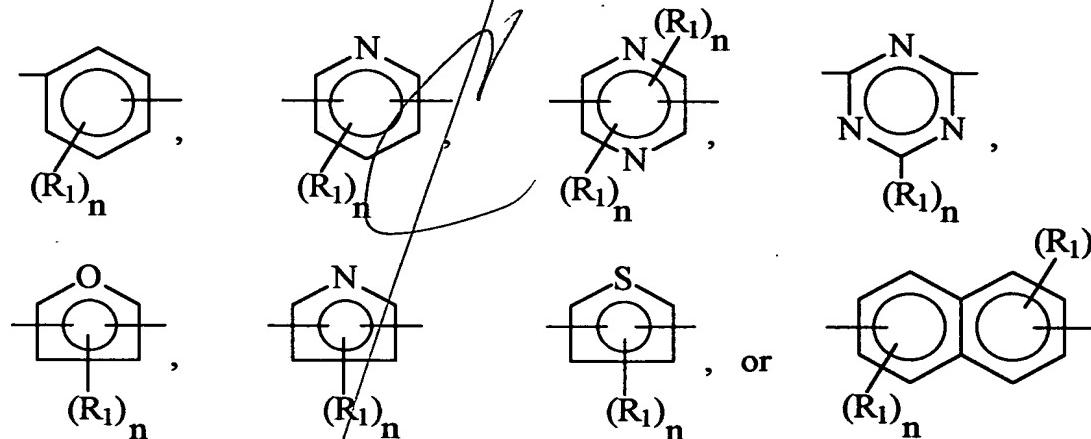
where R₁ is hydrogen; one R₂ is R and the other R₂ is R or hydrogen; R₃ is R; R₄ is alkylene from C₁ to C₈, (aryl)alkylene from C₇ to C₈, or -CO-(aryl)alkylene-CO- from C₇ to C₈; R is benzyl; and q is 1 to 5.

21. Polyvinyl chloride according to Claim 20 that has been made into an article
and said article has been sterilized with gamma radiation.

- 1 22. A method of making a sterilized polymeric article comprising
 2 (A) preparing a polymer which comprises polyvinyl chloride, polyvinylidene
 3 chloride, polycarbonate, polyethylene, polypropylene, polyamide,
 4 polyimide, polyether, polyester, or polyvinyl acetate that contains about
 5 0.005 to about 10 phr of a stabilizer having the formula:



6 where A is C, P, Sn, Si, or B, X is $-\text{R}_1\text{C}=\text{CR}_1-$, $-\text{C}\equiv\text{C}-$,



7 each Y is independently selected from O and S; each R is
 8 independently selected from hydrogen, alkyl from C_1 to C_{20} , aryl from
 9 C_6 to C_{20} , alkaryl from C_7 to C_{20} , and aralkyl from C_7 to C_{20} ; each R_1 is
 10 independently selected from R, OR, RCO, ROCO, ROCO_2 , $\text{P}(\text{R})_2$,

11 P(OR)₂, PR(OR), N(R)₂, (R)₂NCO, (R)₂NCO₂, SR, and halogen; each
12 R₂ is independently selected from R, RCO, ROCO, P(OR)₂,
13 Sn(R)_p(OR)_{3-p}, Sn(R)_p(OCOR)_{3-p}, Si(R)_p(OR)_{3-p}, and B(R)_p(OR)_{2-p}, and
14 two R₁ groups, two R₂ groups, or an R₁ group and an R₂ group can be
15 bridged together to form a ring, except that when two Y's are O and X
16 is -R₁C=CR₁- at least one R₂ is not hydrogen; each R₃ is independently
17 selected from R, RCO, ROCO, ROCO₂, OR, SR, N(R)₂, OP(R)₂, and
18 OP(OR)₂; m is 0 when A is P or B and is 1 when A is Sn, Si, or C; n is
19 0 to 4, depending on the number of available sites; and p is 0 to 3 for
20 the tin stabilizers and 0 to 2 for the boron stabilizers;

- (B) making an article from said polymer; and
(C) exposing said article to gamma radiation.

SNAY
23. A polymer according to Claim 22 wherein said stabilizer is a polyether.

24. A polymer according to Claim 22 wherein said stabilizer is a polyester.

Adol
C37